



ABSTRACT

A method of applying abrasive materials to a substrate includes the steps of forming a relatively small pool of superheated molten metal at the surface of the metal substrate by creating an interaction area on the substrate with a localized high energy source. A powder system is injected into the pool. The powder system comprises metal matrix powder and abrasive powder. The abrasive powder includes abrasive particles having an encapsulating thermal insulating layer for preventing the abrasive particles from being melted by the molten metal in the pool. The energy source is then moved relative to the substrate, thereby allowing the pool to resolidify.